MONOCRAT

IT systems management for everyone

User Manual for Monocrat 4.1

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1 Introduction

This is the user manual of Monocrat 4.1.

Monocrat is a IT system management solution targeting tiny (~10), small (~50) and medium (~200) networks of machines running Windows (Server, XP, Vista, 7, 8) and Linux (Debian, Ubuntu). These networks are encountered in thousands around the world: in small companies no matter their business, in computer labs, in hotels, in hospitals, everywhere. Monocrat can also scale easily in order to handle the administrator of even larger networks (> 1000) that require basic management operations.

Monocrat philosophy is to be simple and lightweight making the administration of networks of machines a "piece of cake" for everyone, while providing all the necessary IT system management features.

Monocrat consists of three components: Monocrat Manager provides a graphical (web and application) user interface for the discovery and management of remote machines, defining and assigning "jobs". Monocrat Server is responsible for passing the Manager's commands ("jobs") to the Monocrat Agents and for receiving and processing the Agents' responses. There is also the Monocrat Server Services configuration UI. Monocrat Agents run in the administered machines and execute the "jobs" received by the Server.

The Windows and Linux components are interoperable, meaning you can have a setup with mixed components. For example install Manager/Server in Linux and manage both Windows and Linux machines.

2 Windows Installation and Configuration

Monocrat comes with two installation setup files, the Monocrat Server and the Monocrat Agent. Monocrat Server setup file contains all the necessary servers (Monocrat Server, Apache, PostgreSQL and Ruby components.) required for the operation of Monocrat, along with the necessary web files for Monocrat Manager.

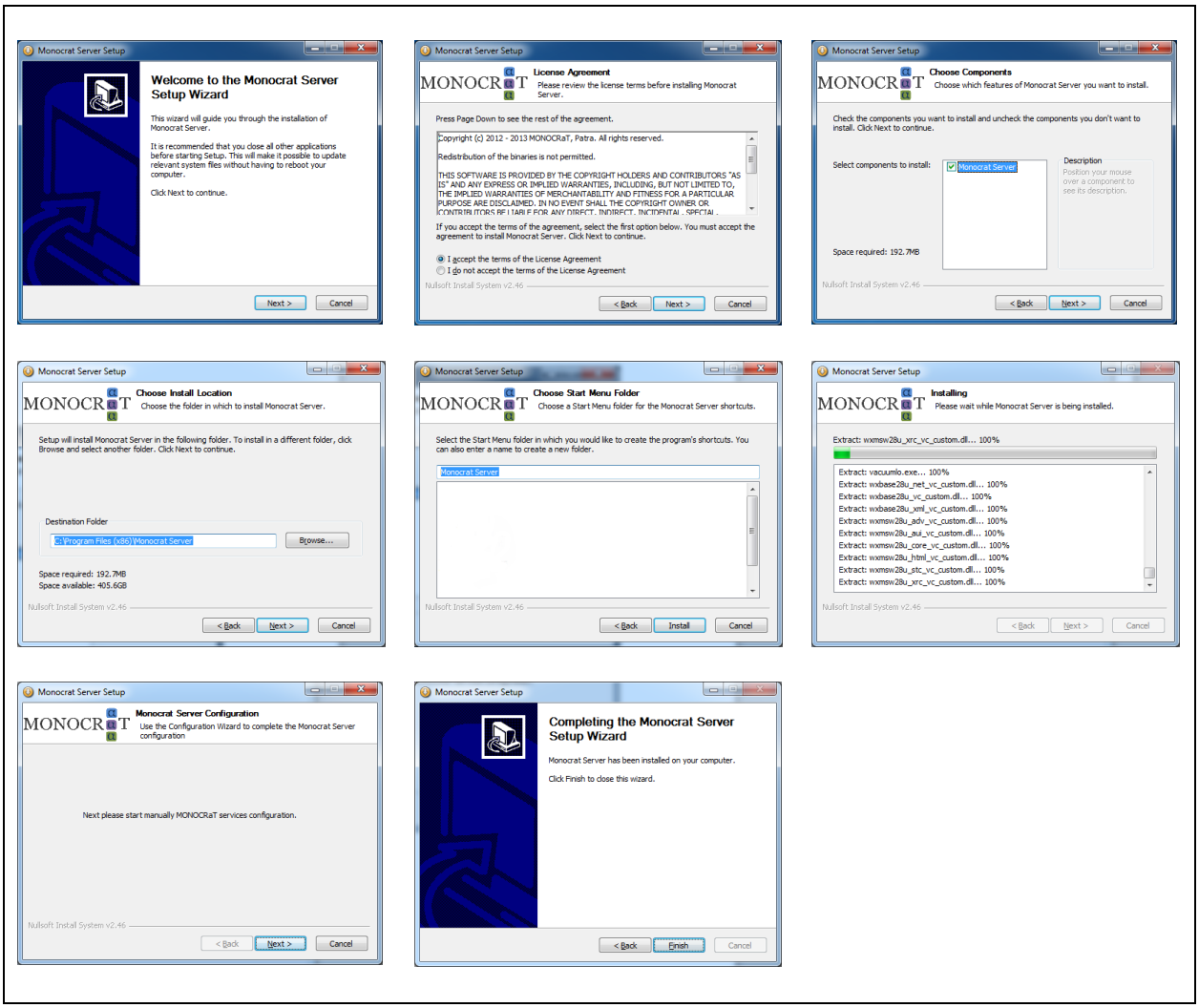
2.1 Monocrat Server

In what follows we present the Monocrat Server's installation steps.

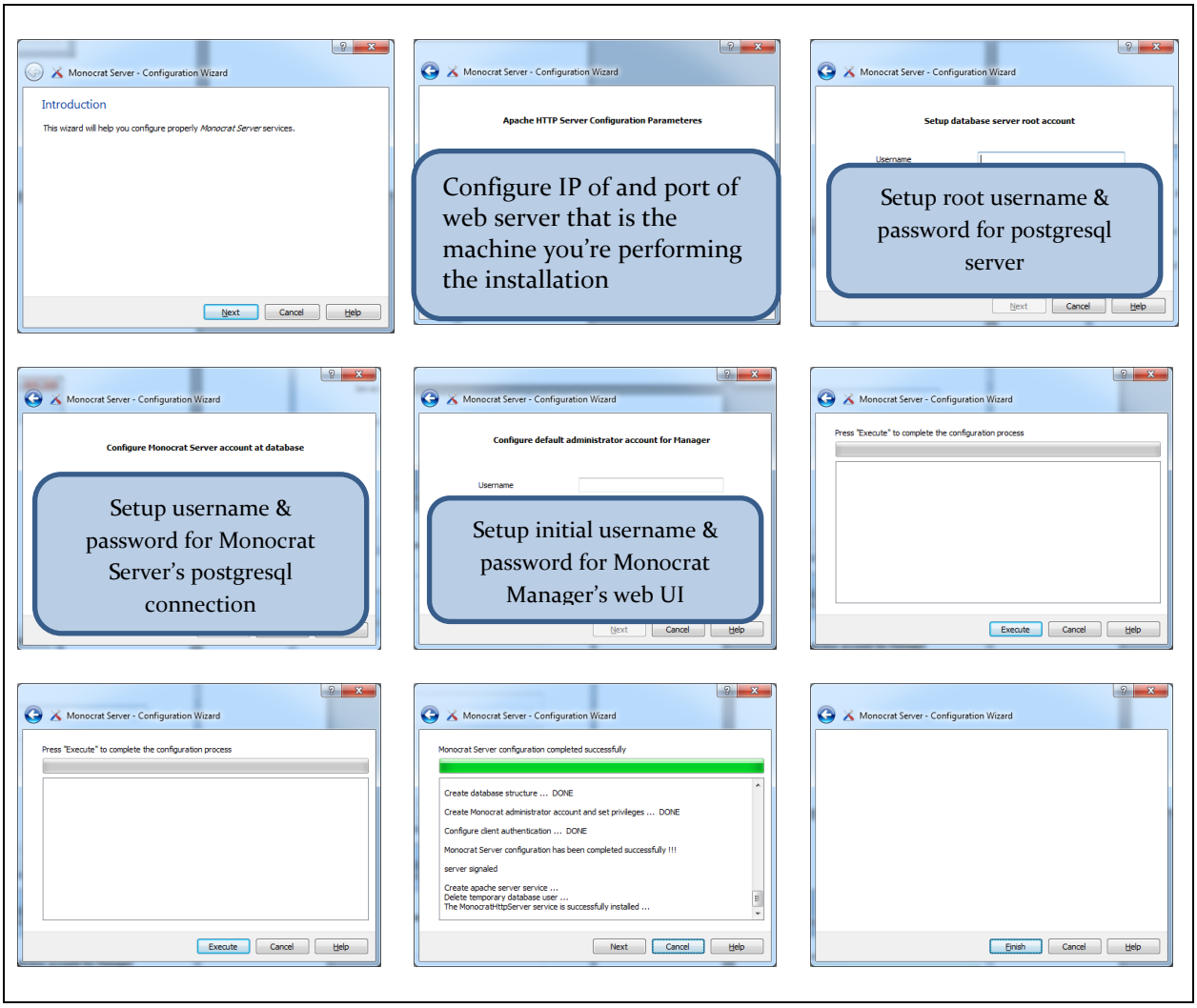
Note: For Windows XP the following packages have to be installed prior Monocrat Server's installation:

- microsoft visual c++ 2005: redistributable - http://www.microsoft.com/en-us/download/details.aspx?id=3387
- microsoft visual c++ 2008: redistributable - http://www.microsoft.com/en-us/download/details.aspx?id=2

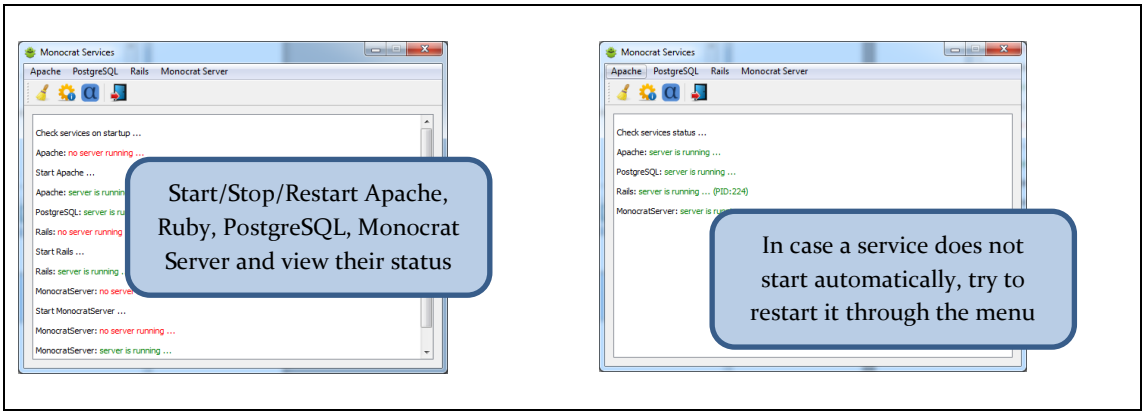
1. Execute Monocrat_Server_4.1.x_Setup.exe and go through the various menus:



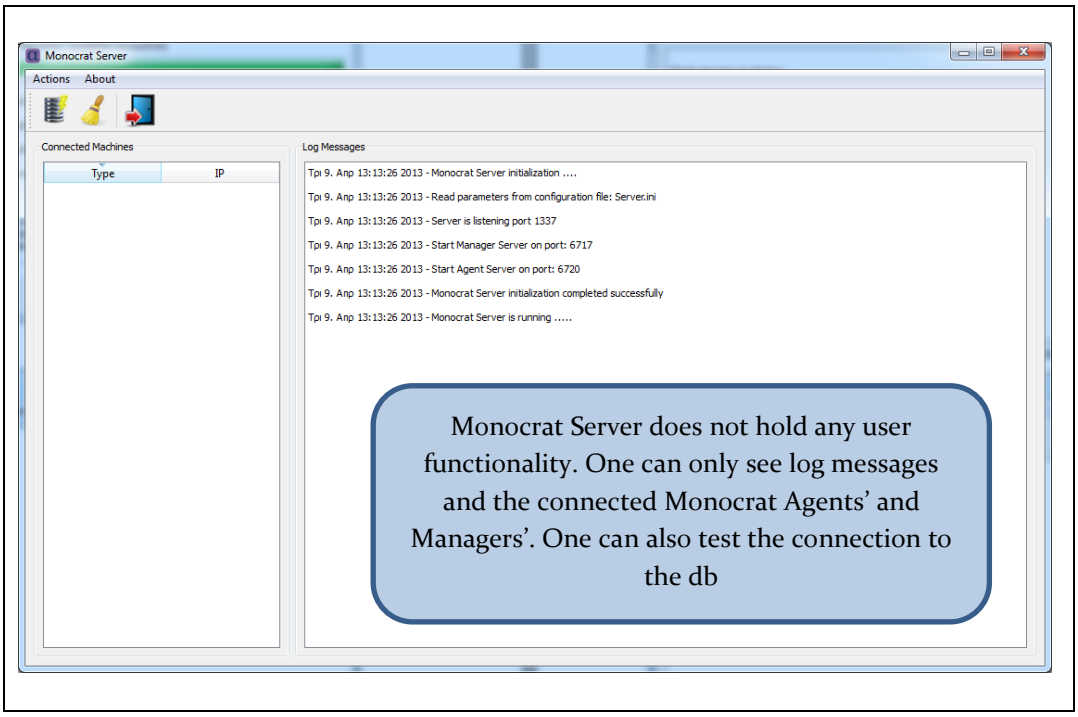
2. Next run the configuration wizard, found in start-up menu:



3. Next run the Monocrat Services, found in start-up menu, in order to initiate all related services and Servers (Apache, Ruby, PostgreSQL, Monocrat Server):

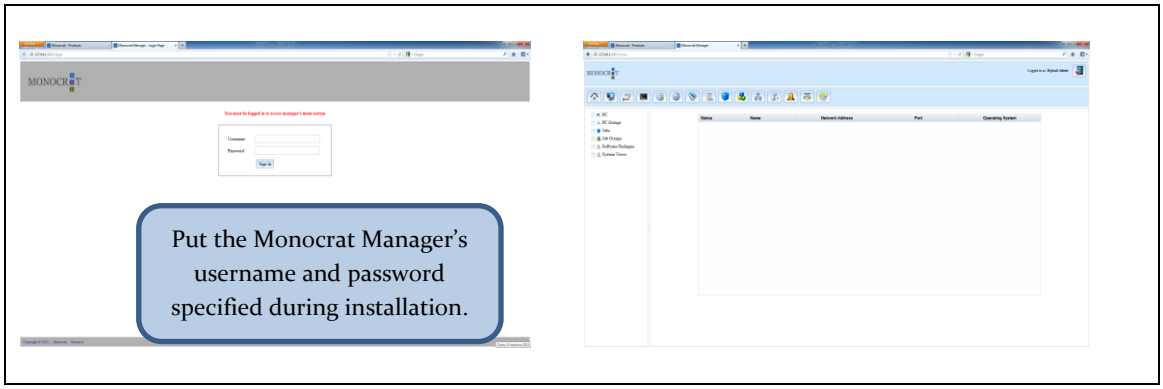

Monocrat Services
Apache PostgreSQL Rails Monocrat Server
Start/Stop/Restart Apache, Ruby, PostgreSQL, Monocrat Server and view their status
Monocrat Services
Apache PostgreSQL Rails Monocrat Server
In case a service does not start automatically, try to restart it through the menu

4. All services are running and Monocrat Server window appears. A task tray icon will also be created.


Monocrat Server
Actions About
Connected Machines
Type IP
Log Messages
Τρι 9. Απρ 13:13:26 2013 - Monocrat Server initialization ....
Τρι 9. Απρ 13:13:26 2013 - Read parameters from configuration file: Server.ini
Τρι 9. Απρ 13:13:26 2013 - Server is listening port 1337
Τρι 9. Απρ 13:13:26 2013 - Start Manager Server on port: 6717
Τρι 9. Απρ 13:13:26 2013 - Start Agent Server on port: 6720
Τρι 9. Απρ 13:13:26 2013 - Monocrat Server initialization completed successfully
Τρι 9. Απρ 13:13:26 2013 - Monocrat Server is running .....
Monocrat Server does not hold any user functionality. One can only see log messages and the connected Monocrat Agents' and Managers'. One can also test the connection to the db

Monocrat Server comes with a .ini file located in the installation directory containing some basic settings.

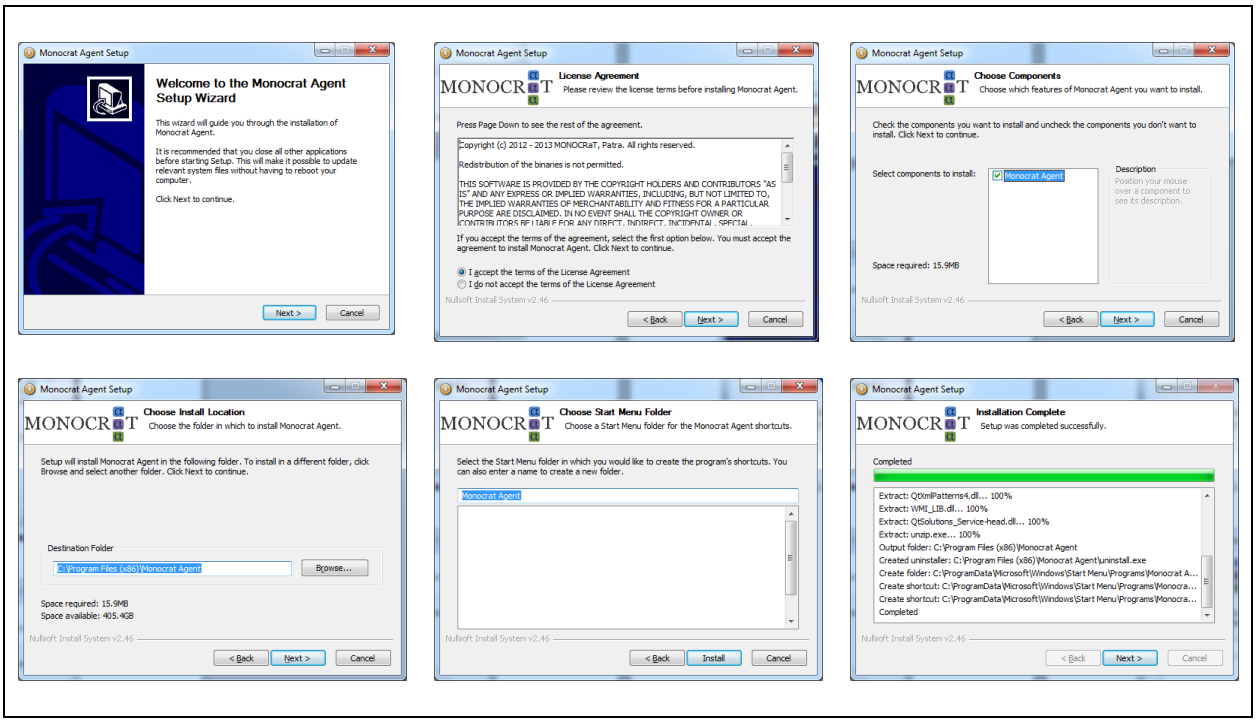
5. Test installation by opening the browser and visiting: http://<IP>:<PORT>



2.2 Monocrat Agent

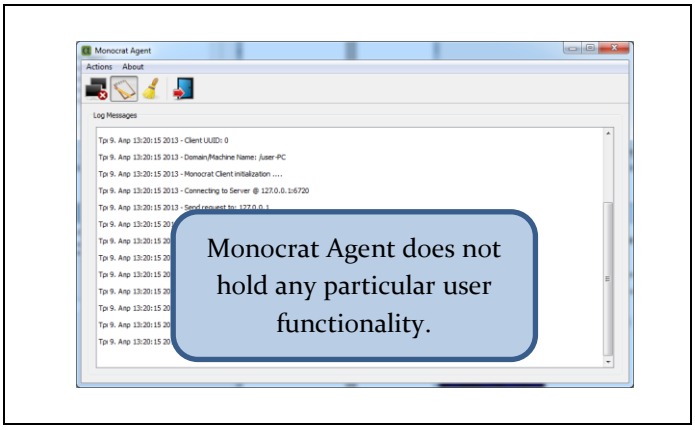
In what follows we present the Monocrat Agent's installation steps.

1. Execute Monocrat_Agent_4.1.x_Setup.exe and go through the various menus:


Monocrat Agent Setup
Welcome to the Monocrat Agent Setup Wizard
This wizard will guide you through the installation of Monocrat Agent.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel
Monocrat Agent Setup
License Agreement
Please review the license terms before installing Monocrat Agent.
Press Page Down to see the rest of the agreement.
Copyright (c) 2012 - 2013 MONOCRaT, Patra. All rights reserved.
Redistribution of the binaries is not permitted.
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
If you accept the terms of the agreement, select the first option below. You must accept the agreement to install Monocrat Agent. Click Next to continue.
I accept the terms of the License Agreement
I do not accept the terms of the License Agreement
Nullsoft Install System v2.46
< Back
Next >
Cancel
Monocrat Agent Setup
Choose Components
Choose which features of Monocrat Agent you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
Monocrat Agent
Description
Position your mouse over a component to see its description.
Space required: 15.9MB
Nullsoft Install System v2.46
< Back
Next >
Cancel
Monocrat Agent Setup
Choose Install Location
Choose the folder in which to install Monocrat Agent.
Setup will install Monocrat Agent in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files (x86)\Monocrat Agent
Browse...
Space required: 15.9MB
Space available: 405.4GB
Nullsoft Install System v2.46
< Back
Next >
Cancel
Monocrat Agent Setup
Choose Start Menu Folder
Choose a Start Menu folder for the Monocrat Agent shortcuts.
Select the Start Menu folder in which you would like to create the program's shortcuts. You can also enter a name to create a new folder.
Monocrat Agent
Nullsoft Install System v2.46
< Back
Install
Cancel
Monocrat Agent Setup
Installation Complete
Setup was completed successfully.
Completed
Extract: QtXmlPatterns4.dll... 100%
Extract: WMI_LIB.dll... 100%
Extract: QtSolutions_Service-head.dll... 100%
Extract: unzip.exe... 100%
Output folder: C:\Program Files (x86)\Monocrat Agent
Created uninstaller: C:\Program Files (x86)\Monocrat Agent\uninstall.exe
Create folder: C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Monocrat A...
Create shortcut: C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Monocra...
Create shortcut: C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Monocra...
Completed
Nullsoft Install System v2.46
< Back
Next >
Cancel

Agent Configuration
Monocrat Agent Configuration
Please enter the required information and then click Next to complete the Monocrat Agent installation
Server (IP or DNS)
127.0.0.1
Server Port:
6720
IP of the Monocrat Server
Nullsoft Install System v2.46
< Back
Next >
Cancel
OpenRSM Agent "Run As" Configuration
Monocrat Agent Type
Please select whether Monocrat Agent will run as an application or as a serive.
Select "Run As" Configuration
Application
Service
Monocrat Agent can run as a service or application
Monocrat Agent Setup
Completing the Monocrat Agent Setup Wizard
Monocrat Agent has been installed on your computer.
Click Finish to close this wizard.
Run Monocrat Agent
< Back
Finish
Cancel

2. Monocrat Agent will appear (in case the application mode is selected during installation). A task tray icon will also be created.



Monocrat Agent comes with a .ini file located in the installation directory containing some basic settings.

Address=###.###.###.#	
ServerPort=6720	
ShowMainWindow=1	By setting to 0 the main window will not appear, only the task tray icon
PollServer=0	In case the Monocrat Server is behind a NAT (in relation to the Monocrat Server), then by setting this to 1 permits the Server/Agent communication in poll mode
NegotiateOnStartup=1	Agent notifies Server on startup, for its existence

2.3 Network Connectivity

For the smooth network connectivity between the Monocrat Server and Agent the following ports must be opened:

- Monocrat Server: 6720/TCP
- Monocrat Agent: 6722/UDP

3 Linux Installation and Configuration

Monocrat Linux version comes with three installation packages in Debian software package format (deb packages) that are available for Ubuntu versions 12.04, 13.04 and Debian 7 (wheezy) for 32-bit PC (i386) and 64-bit PC (amd64).

In the current release (4.2) Monocrat Server and Monocrat Manager packages should be installed in the same machine.

In order to install Monocrat Server and Manager packages the only prerequisite is a PostgreSQL server either in the same machine with the Monocrat Server and Manager or in some other host.

In the current version the PostgreSQL configuration for use by Monocrat Server and Manager, the creation of the necessary PosgreSQL user accounts (roles as defined by PostgreSQL) and the database structure are based on SQL scripts that created from the installation packages but should be executed manually by the user using the available PostgreSQL commands.

In the following instructions we assume that PostgreSQL server is installed in the machine where Monocrat will be installed and we use the default root account "***postgres***".

More information regarding PostgreSQL configuration:

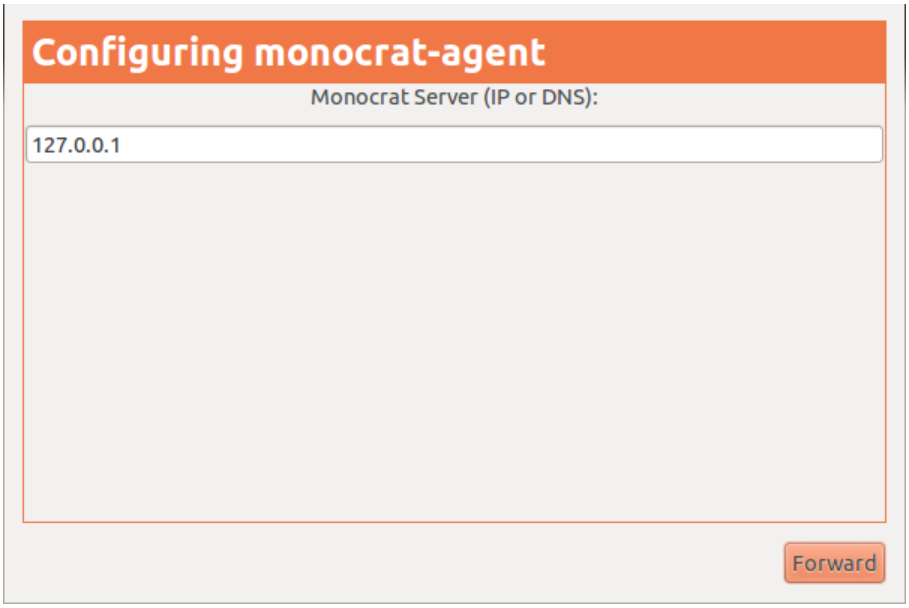
[1]. http://www.postgresql.org/docs/9.1/static/client-authentication.html
[2]. http://www.postgresql.org/docs/9.1/static/auth-pg-hba-conf.html
[3]. http://www.postgresql.org/docs/9.3/static/user-manag.html

3.1 Monocat Agent

Package dependencies:

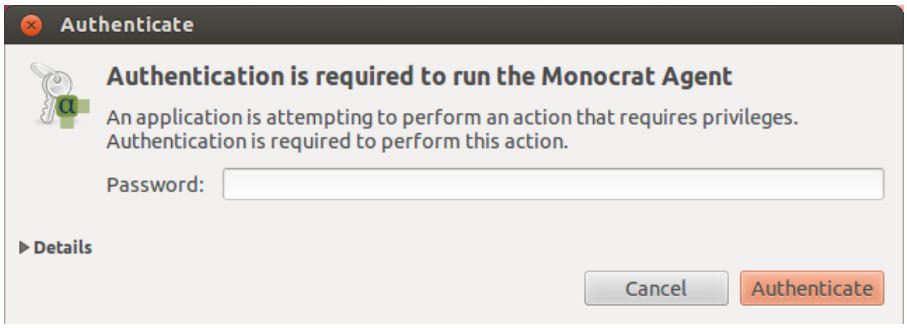
- libc6 (>= 2.4)
- libgcc1 (>= 1:4.1.1)
- libstdc++6 (>= 4.1.1)
- debconf (>= 0.5) | debconf-2.0
- libqtcore4 (>= 4:4.8.0)
- libqtgui4 (>= 4:4.5.3)
- libqt4-dbus (>= 4:4.5.3)
- libqt4-network (>= 4:4.5.3)
- libqt4-xmlpatterns
- libpolkit-qt-1-1 (>= 0.99.0)
- python
- python-support (>= 0.90.0)
- dmidecode
- lshw
- sysstat

Agent installation is simple, just use your favorite package manager to install the appropriate agent package based on your computer architecture. During the installation, user will be asked to provide only the IP address of the Monocrat Server.

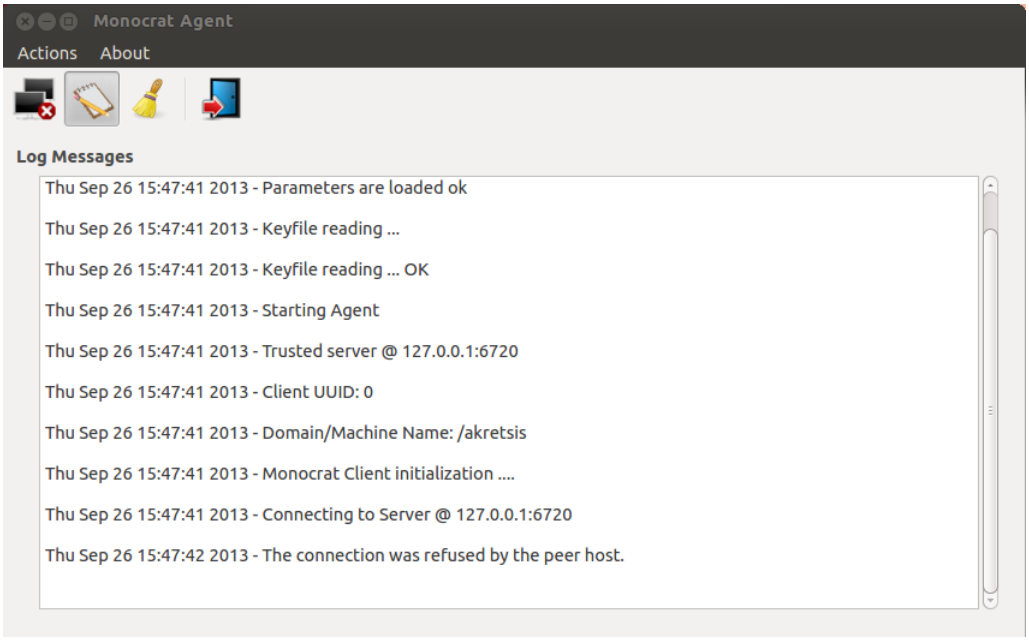


Define Monocrat Server IP address

The installation package will create a menu entry for Monocrat Agent under ***System Tools*** (***System Tools*** => ***Monocrat Agent***). Monocrat Agent can be launched either by this menu entry or by executing the command ***monocrat-agent*** from the terminal. Note that Monocrat Agent execution requires root privileges.



Only after successful authentication the Agent will be running.


Monocrat Agent
Actions
About
Log Messages
Thu Sep 26 15:47:41 2013 - Parameters are loaded ok
Thu Sep 26 15:47:41 2013 - Keyfile reading ...
Thu Sep 26 15:47:41 2013 - Keyfile reading ... OK
Thu Sep 26 15:47:41 2013 - Starting Agent
Thu Sep 26 15:47:41 2013 - Trusted server @ 127.0.0.1:6720
Thu Sep 26 15:47:41 2013 - Client UUID: 0
Thu Sep 26 15:47:41 2013 - Domain/Machine Name: /akretsis
Thu Sep 26 15:47:41 2013 - Monocrat Client initialization ....
Thu Sep 26 15:47:41 2013 - Connecting to Server @ 127.0.0.1:6720
Thu Sep 26 15:47:42 2013 - The connection was refused by the peer host.

Finally, the ***/usr/share/monocrat-agent*** directory contains among the other the configuation file (***Agent.ini***) and log file (***Agent.log***).

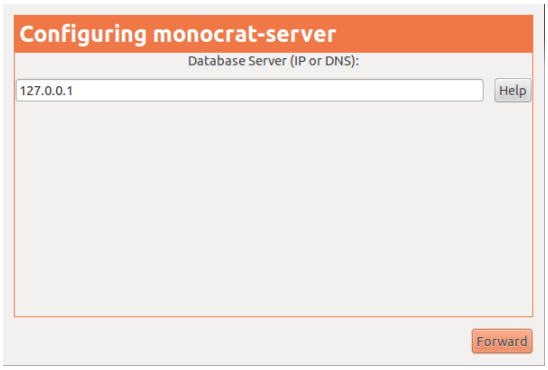
3.2 Monocrat Server

Package dependencies:

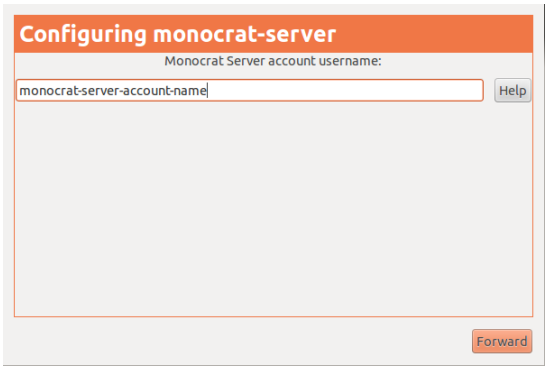
- libc6 (>= 2.14)
- libgcc1 (>= 1:4.1.1)
- libstdc++6 (>= 4.1.1)
- debconf (>= 0.5) | debconf-2.0
- libqtcore4 (>= 4:4.7.0~beta1)
- libqtgui4 (>= 4:4.5.3)
- libqt4-network (>= 4:4.5.3)
- libqt4-xmlpatterns (>= 4:4.5.3)
- libqt4-sql (>= 4:4.5.3)
- libqt4-sql-psql
- libpolkit-qt-1-1 (>= 0.99.0)

During the installation of the Monocrat Server the user must provide the following information:

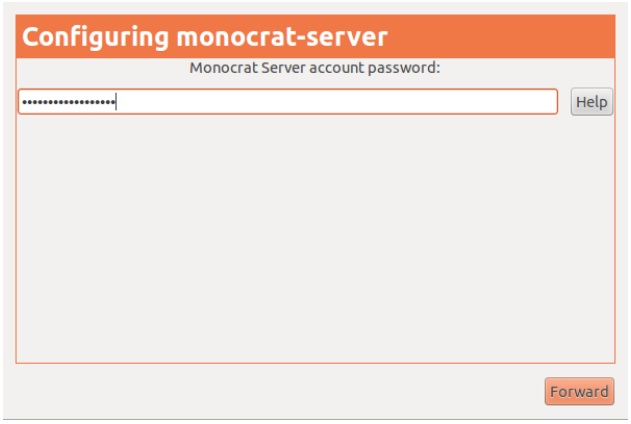
a) PostgreSQL server IP address
b) Role name of the Monocrat Server database account
c) Password for the Monocrat Server database account



(a) PostgreSQL Server IP address



(b) Role name for Monocrat Server database account



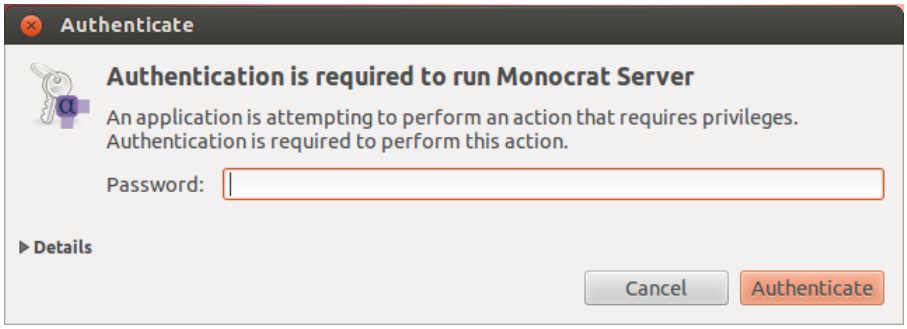
(c) Monocrat Server database account password

In ***/usr/share/monocrat-server*** directory there are the configuration file (***Server.ini***), the log file (***Server.log***) and three SQL script files (***setup_db.sql, rsmdb_struct.sql , rsmdb_fill.sql***) which create and define the Monocrat database structure.

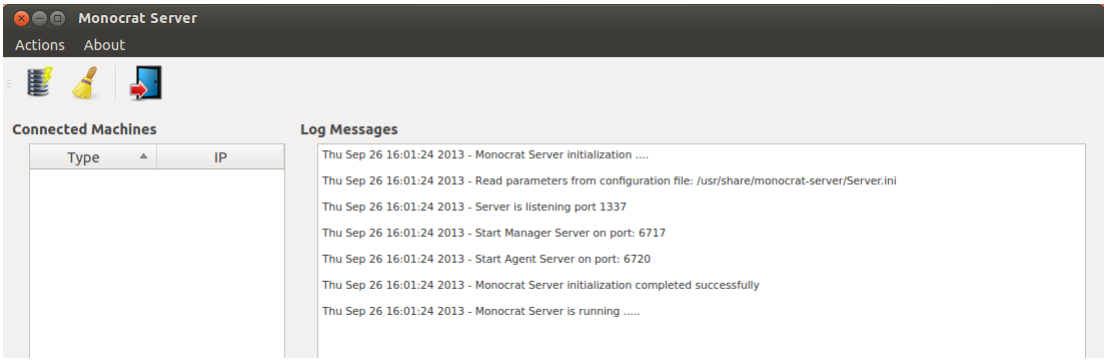
The next step after Monocrat Server installation is to create the required database and populate it with the appropriate initial values. In order to setup the Monocrat database we execute the following commands:

```
] # psql –U postgres –f /usr/share/monocrat-server/setup_db.sql

] # psql –U postgres rsmdb –f /usr/share/monocrat-server/rsmdb_struct.sql

] # psql –U postgres rsmdb –f /usr/share/monocrat-server/rsmdb_fill.sql
```

The installation package will create a menu entry for Monocrat Server under ***System Tools*** (***System Tools*** => ***Monocrat Server***). Monocrat Server can be launched either by this menu entry or by executing the command ***monocrat-server*** from the terminal. Note that Monocrat Server execution requires root privileges.



Only after successful authentication the Server will be running.


Monocrat Server
Actions
About
Connected Machines
Type
IP
Log Messages
Thu Sep 26 16:01:24 2013 - Monocrat Server initialization ....
Thu Sep 26 16:01:24 2013 - Read parameters from configuration file: /usr/share/monocrat-server/Server.ini
Thu Sep 26 16:01:24 2013 - Server is listening port 1337
Thu Sep 26 16:01:24 2013 - Start Manager Server on port: 6717
Thu Sep 26 16:01:24 2013 - Start Agent Server on port: 6720
Thu Sep 26 16:01:24 2013 - Monocrat Server initialization completed successfully
Thu Sep 26 16:01:24 2013 - Monocrat Server is running .....

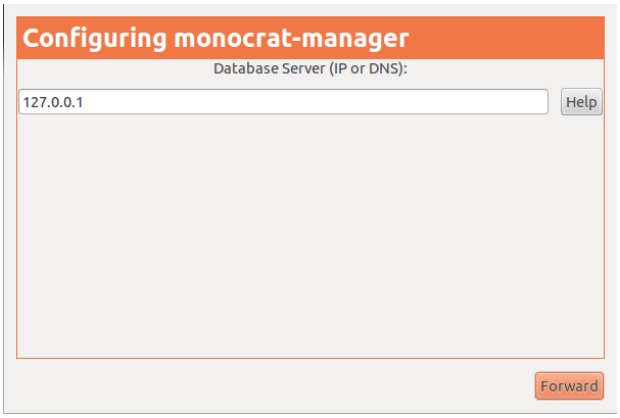
3.3 Monocrat Manager

Package dependencies:

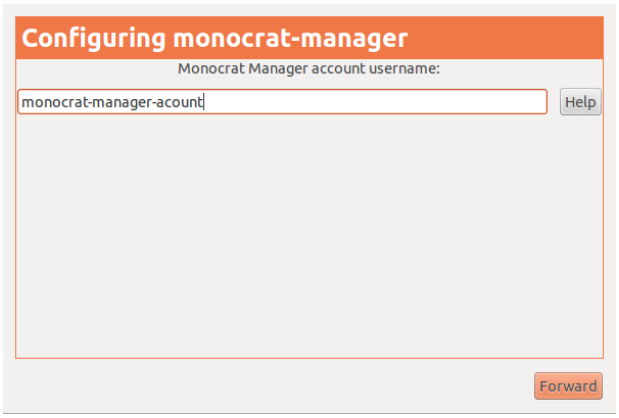
- libc6 (>= 2.3)
- debconf (>= 0.5) | debconf-2.0
- libpq-dev
- ruby1.9.1
- ruby1.9.1-dev
- rubygems

During the installation of the Monocrat Server the user should provide the following information:

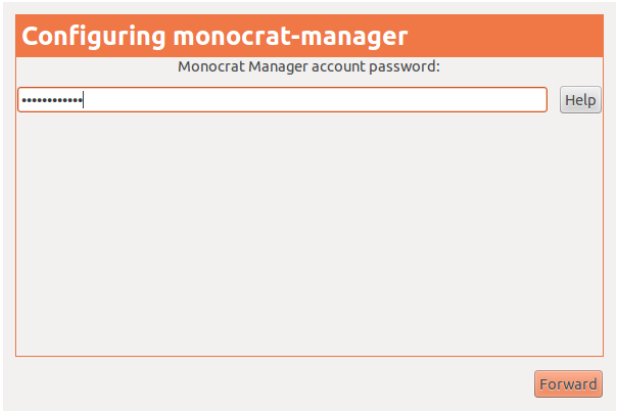
a) PostgreSQL server IP address
b) Role name of the Monocrat Manager database account
c) Password for the Monocrat Server database account
d) Web server IP address (IP address of the machine where installation is performed)



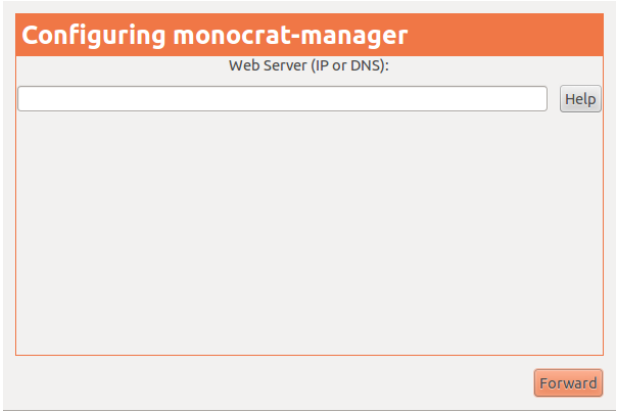
(a) PostgreSQL Server IP address



(b) Role name for Monocrat Manager database account



(c) Monocrat Manager database account password



(d) Web server IP address

When package installation is completed successfully, it is necessary to make sure that all Monocrat Manager ruby dependencies are available to our machine. For this operation we use the Bundler which tracks a Ruby on Rails application's code and installs all the required rubygems.

We execute the following commands:

```
t] #  gem1.9.1 install bundle

] #  cd /usr/share/monocrat-manager

]#  bundle install
```

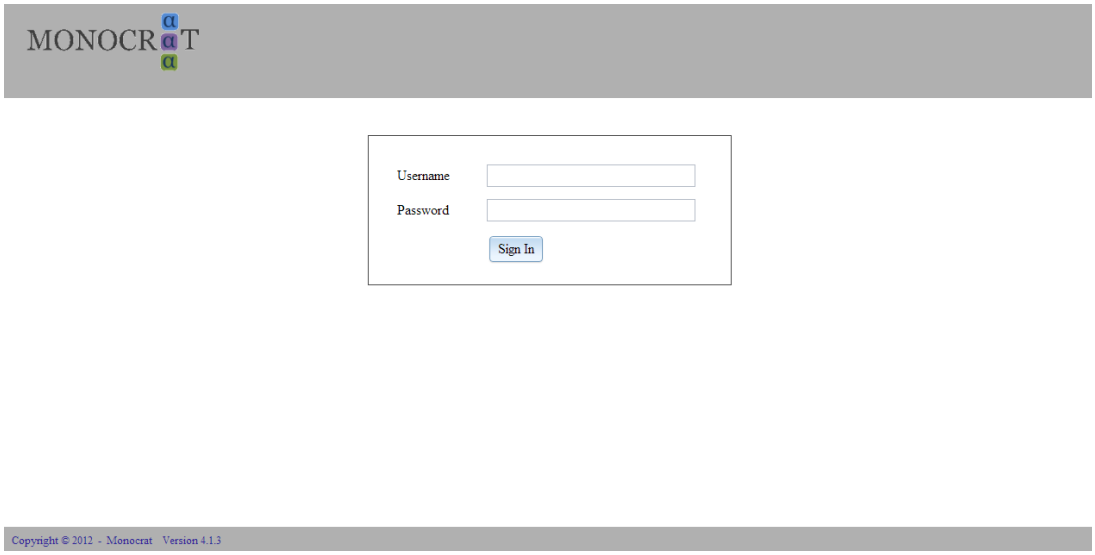
The next step is to execute the SQL script ***setup_admin.sql*** in order to setup the PostgreSQL role for the Monocrat Manager.

```
] # psql –U postgres rsmdb –f /usr/share/monocrat-manager/setup_admin.sql
```

Finally, we start the thin web server by executing the command, where the parameter ***–p PORT*** defines the web server port, if this parameter is omitted the default port (3000) will be used.

```
1.9.1 /usr/share/monocrat-manager/script/rails s –p PORT
```

Test installation by opening the browser and visiting: **http://<IP>:<PORT>** , where **IP** is the thin web server address that we provide during the installation and **PORT** is the web server port as defined by option –p , with default value 3000. As login username and password we use the credentials of the Monocrat Manager database account.



4 Using Monocrat UI

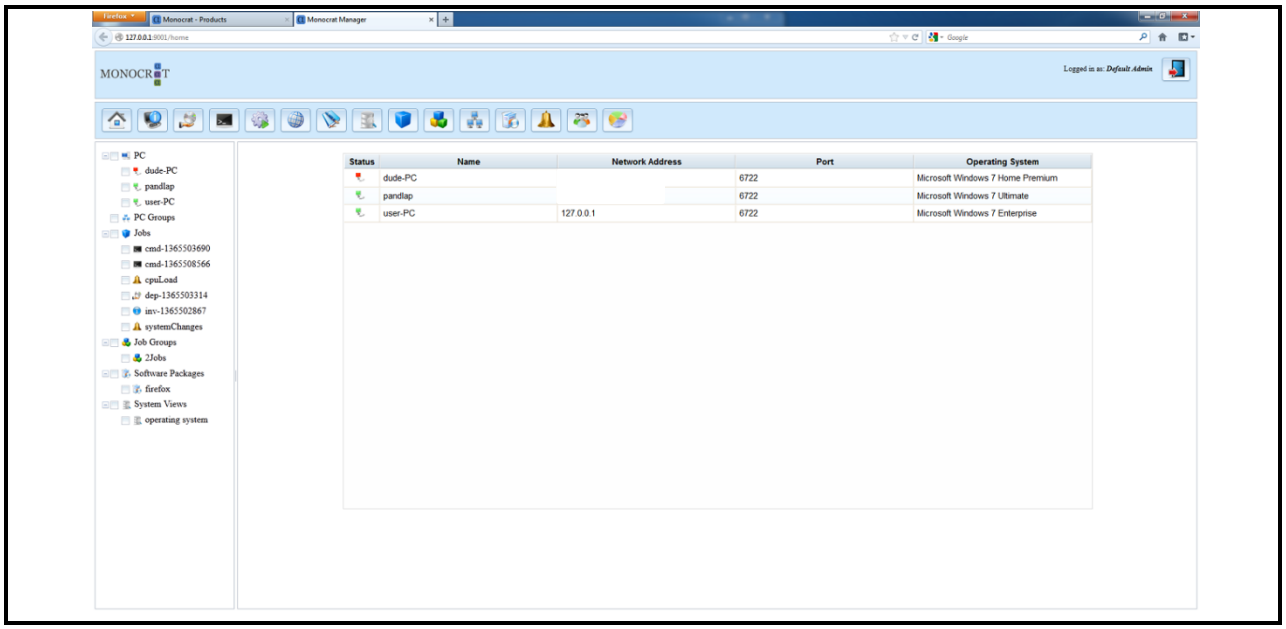
4.1 General

Through the Monocrat Manager web UI, the administrator can view all the administered machines, execute a number of operations on them and collect reports and statistics.

The main entities are: the “PC” that is a machine running a Monocrat Agent and the “Job” that describes a management or monitoring operation performed in a PC. Four kinds of Jobs can be performed in a PC:

- Inventory: Collect information for the managed PC
- Remote Command Execution: Execute a command in the managed PC
- Software Deployment & Uninstallation: Install or uninstall software from the managed PC
- Alarms: Setup alarms in the managed PC

Monocrat Manager web UI has 3 main visual components. The tree on the left, the main windows on the center and right and the toolbar on the top. The initial main window show the discovered PC, their status and operating system (after an inventory is performed).



The tree contains the following information:

- PC: The discovered machines running a Monocrat Agent. Their status (green/red) indicates whether or not an Agent is running or the corresponding machine is closed or communication is not possible.
- PC Groups: Groups of discovered PC.
- Jobs: Jobs configurations.
- Jobs Groups: Groups of Jobs.
- Software Packages: Description of a software package.

- System Views: Description of a set of filters (a view) applied in the PC collected information.

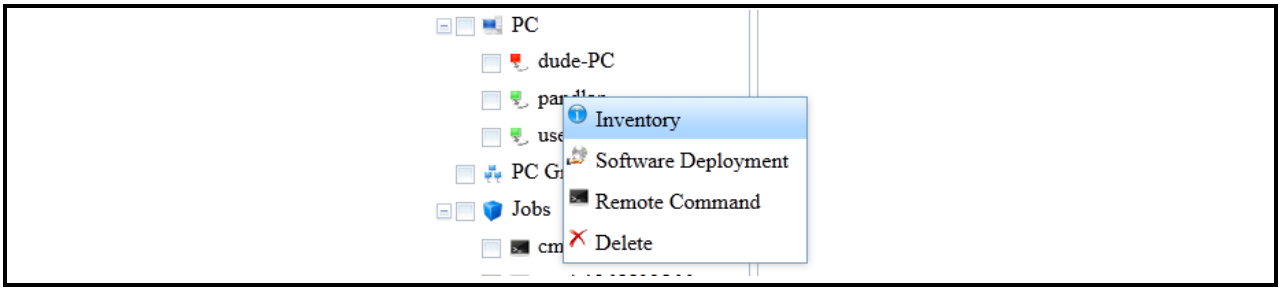
The toolbar contains the following buttons.

Icon	Functionality
	Home
	Run an Inventory/ Monitoring Job
	Run a Software Installation or Uninstallation Job
	Run a Remote Command Job
	Run one or more Jobs to one or more PC
	Discover new PC with installed Agents
	View Jobs execution status
	Create System Views
	Create a Job configuration
	Create a group of Jobs
	Create a group of PC
	Create a software package
	View Alarms
	Create new Manager's users
	View Statistics
	Exit Manager

4.2 Create and Execute a Job

There are two ways to create and execute a Job.

The fast way is by right clicking a PC and selecting a Job. Next, a window pops up requesting basic configuration for this Job. After pressing OK a new Job will be created (appearing also in the tree) having a pseudo-random name, while the Job will also be sent to the corresponding PC.

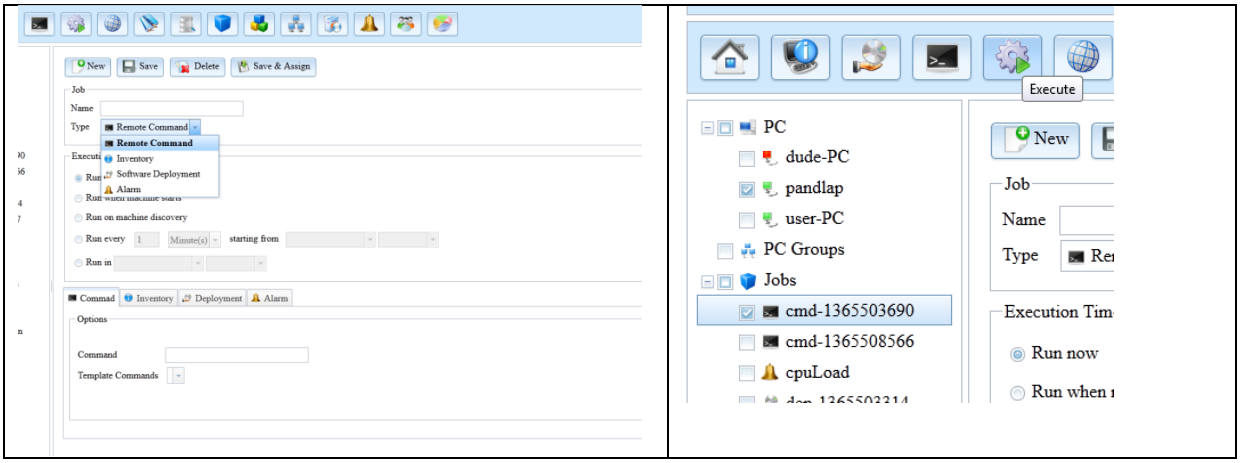


The detailed way is by pressing the Job button in the toolbar and by creating a new Job in the Jobs window. In the Jobs window the user can specify general Job settings: name and execution time. The execution time dictates when the Job will be executed:

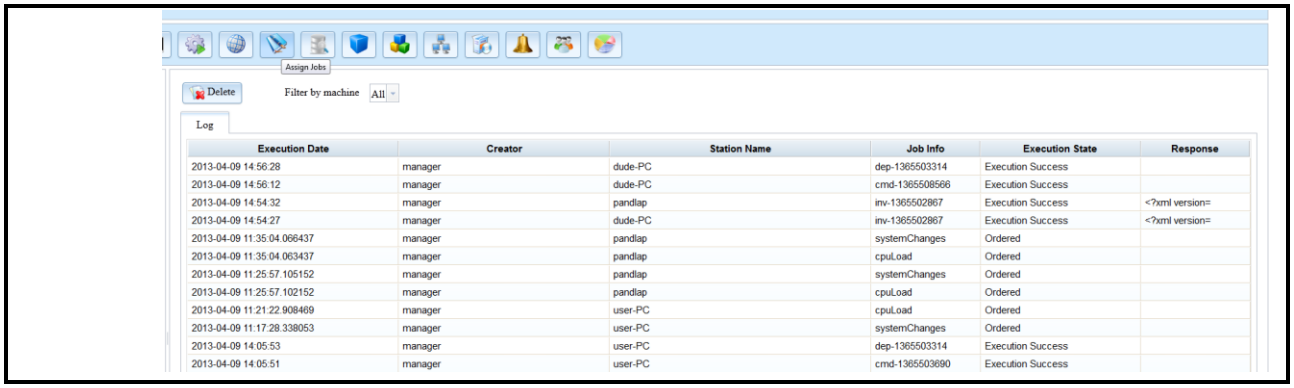
- now
- when PC starts or now if the machine is already running – that its status in green
- run on a new machine discovery. This is a generic job and does not need to be assigned to any machine
- run periodically
- run in a particular time in the future

Also, particular Job settings can be specified, which are described in the sections that follow.

Then the use has to assign the created job to one or more PC and Execute.

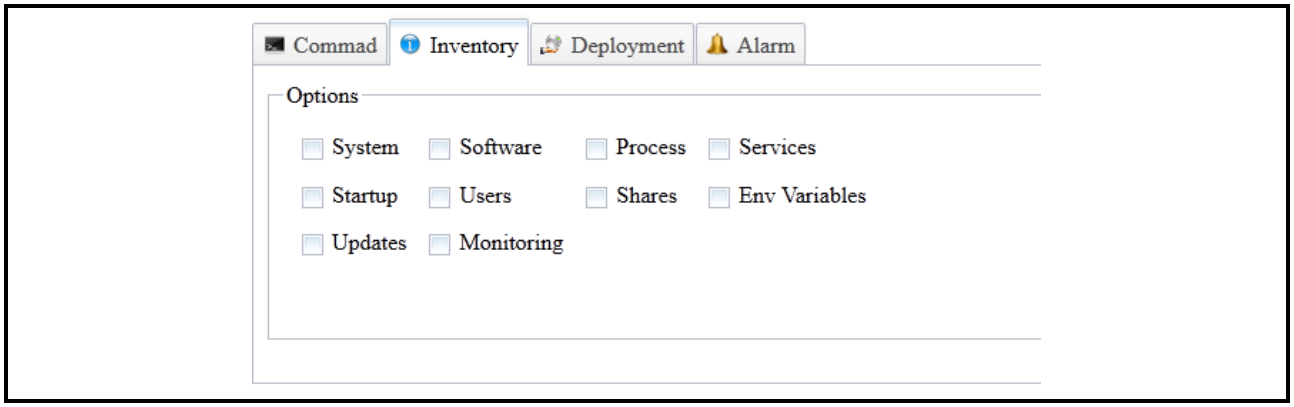


In both case the status of the Job's execution appears in the Log ("Assign Jobs") window.

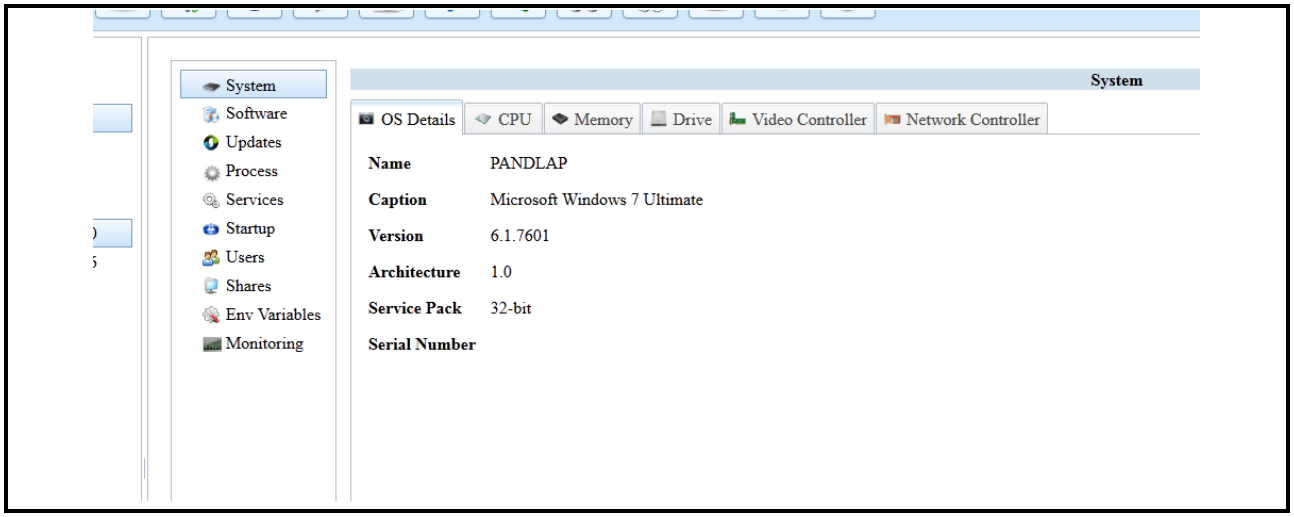

Assign Jobs
Delete
Filter by machine
All
Log
Execution Date
Creator
Station Name
Job Info
Execution State
Response
2013-04-09 14:56:28 manager dude-PC dep-1365503314 Execution Success
2013-04-09 14:56:12 manager dude-PC cmd-1365508566 Execution Success
2013-04-09 14:54:32 manager pandlap inv-1365502867 Execution Success <?xml version=
2013-04-09 14:54:27 manager dude-PC inv-1365502867 Execution Success <?xml version=
2013-04-09 11:35:04.066437 manager pandlap systemChanges Ordered
2013-04-09 11:35:04.063437 manager pandlap cpuLoad Ordered
2013-04-09 11:25:57.105152 manager pandlap systemChanges Ordered
2013-04-09 11:25:57.102152 manager pandlap cpuLoad Ordered
2013-04-09 11:21:22.908469 manager user-PC cpuLoad Ordered
2013-04-09 11:17:28.338053 manager user-PC systemChanges Ordered
2013-04-09 14:05:53 manager user-PC dep-1365503314 Execution Success
2013-04-09 14:05:51 manager user-PC cmd-1365503690 Execution Success

4.2.1 Inventory

Inventory settings in the Jobs window include the particular items to inventorize:

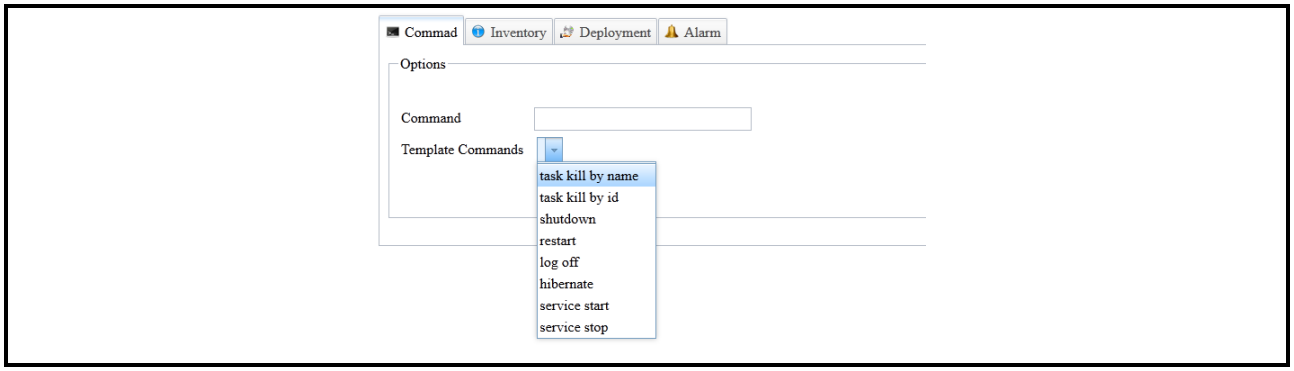


The inventory results for a PC can be viewed by right clicking the corresponding PC in the tree or in the initial screen in initial main window.

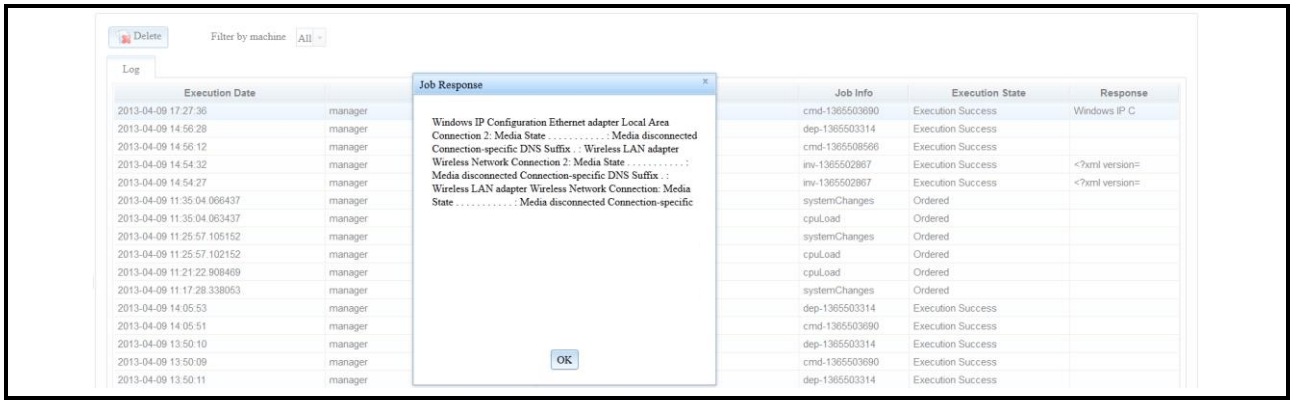


4.2.2 Remote Command Execution

Remote Command settings in the Jobs window include the particular command to execute and a set of template Jobs:

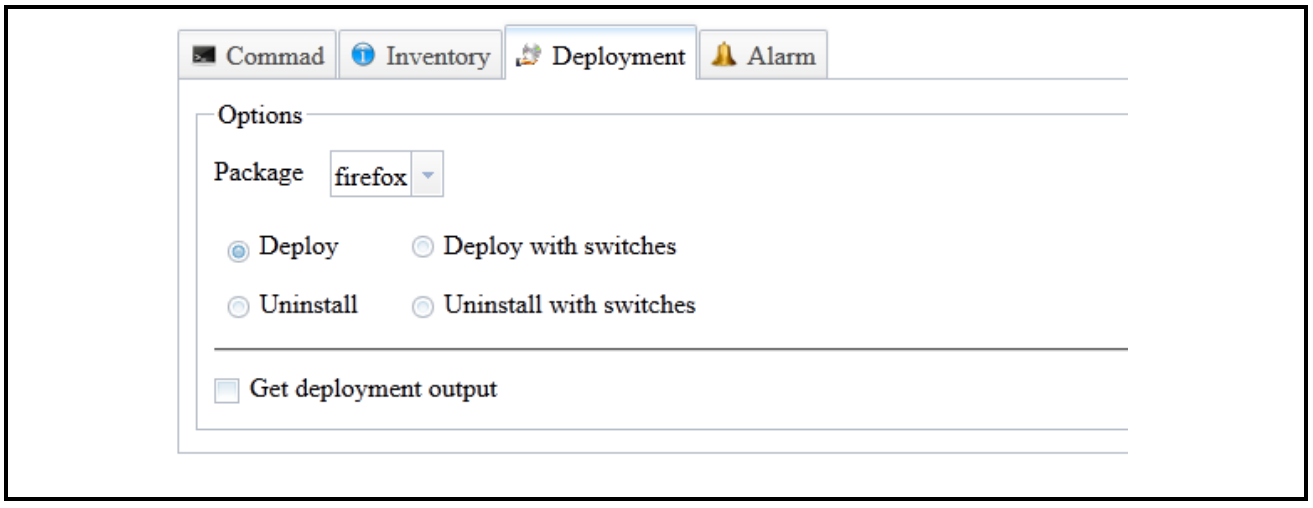


The Remote Command results can be viewed by right clicking the corresponding entry in the Log ("Assign Jobs") window, assuming of course that the executed command produces some output.


Delete
Filter by machine
All
Log
Execution Date
Job Info
Execution State
Response
Job Response
Windows IP Configuration Ethernet adapter Local Area Connection 2: Media State . . . . . : Media disconnected Connection-specific DNS Suffix . : Wireless LAN adapter Wireless Network Connection 2: Media State . . . . . : Media disconnected Connection-specific DNS Suffix . : Wireless LAN adapter Wireless Network Connection: Media State . . . . . : Media disconnected Connection-specific
OK

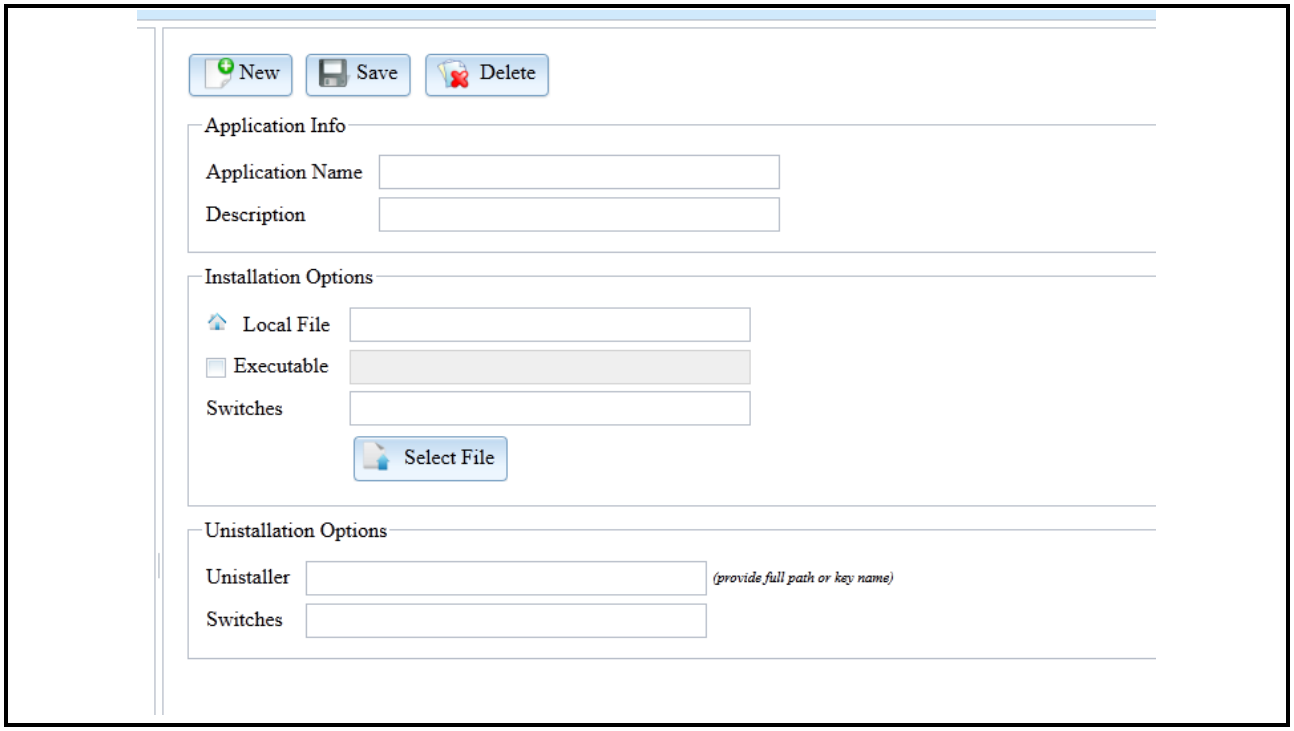
4.2.3 Software Deployment & Uninstallation

Software Deployment & Uninstallation settings in the Jobs window include the Software Package on which to operate, the exact operation to perform and whether or not deployment output will be returned.



A Software Package is defined through the corresponding main window, accessible either through the tree or the toolbar. The user has to specify the following:

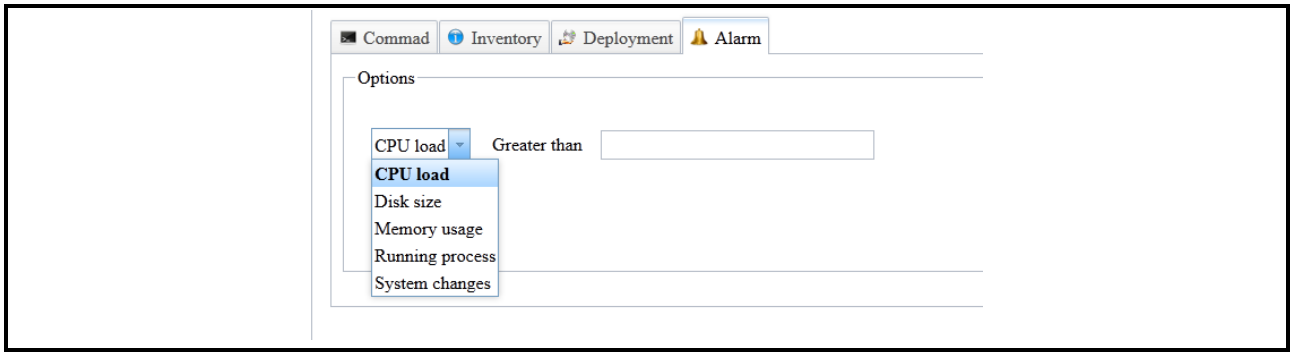
- the name of the application
- a short description
- select the setup file or a zip file containing the installation files
- in case of a zip file the executable has to be specified
- installation switches, e.g. for silent installation
- uninstaller's full path or name (e.g., "Firefox" or "Opera") based on which an uninstaller will be searched
- uninstallation switches, e.g. for silent uninstallation



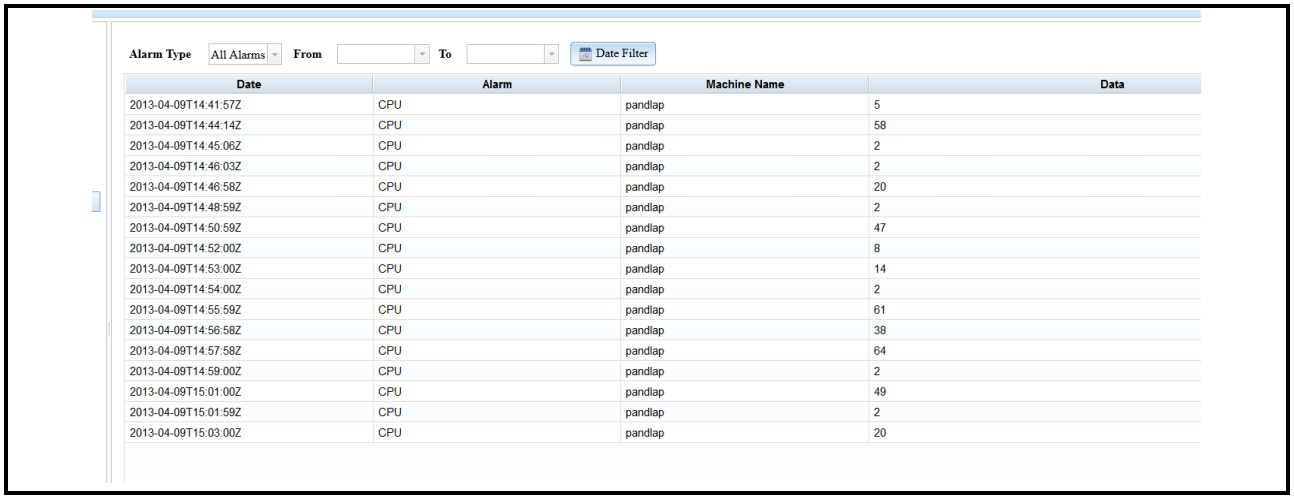
The results of an installation or uninstallation Job are reported back in the Log ("Assign Jobs") window.

4.2.4 Alarms

Alarm settings in the Jobs window include the parameter to monitor and the corresponding value.



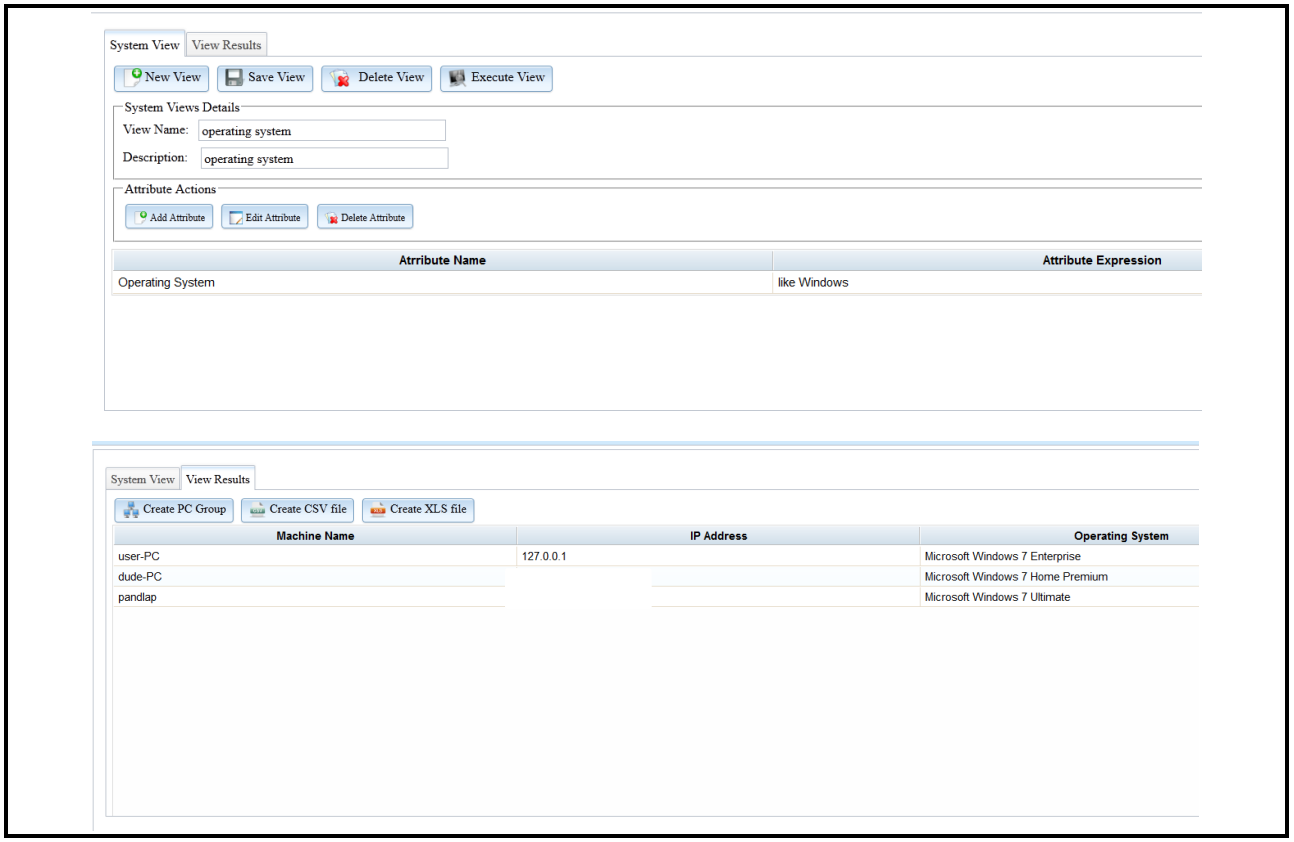
The identified alarms are presented in the Alarms main window.



Alarms can be unset by deleting the corresponding entry from the Log ("Assign Jobs") window.

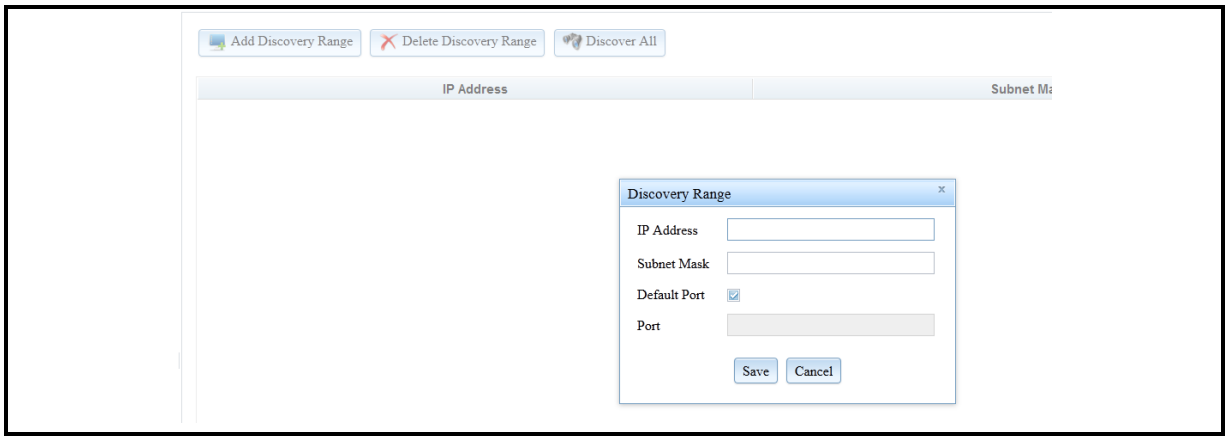
4.3 Views

Through System Views the user is able to query discovered PC with specific characteristics, such as Operating System, installed software, cpu, memory and other. It is assumed that a recent inventory Job has been executed in all the PC. The System View's results can be exported in csv and xls format.



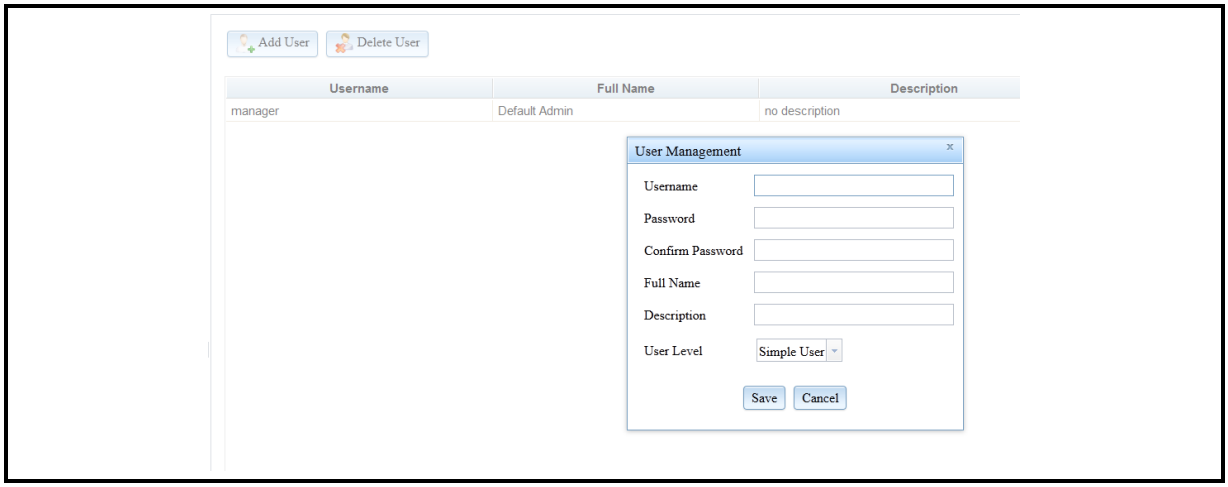
4.4 Discovery

Through the Discovery main window the user is able to locate PCs' where Monocrat Agents' are running.



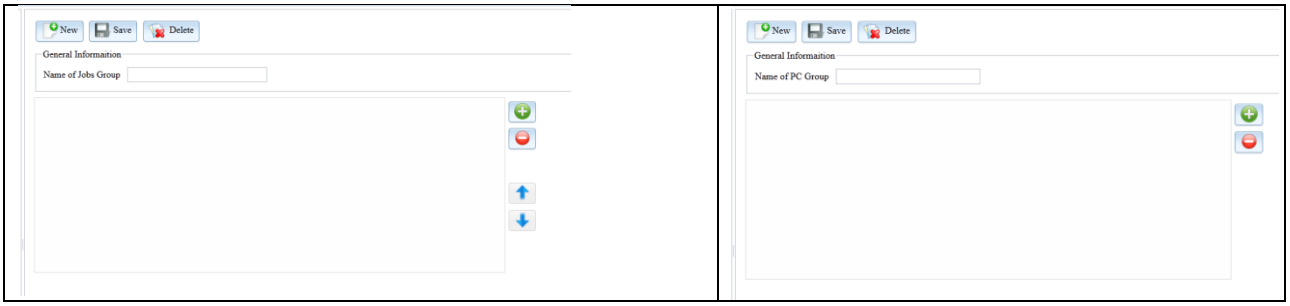
4.5 Users

New users for the Monocrat Manager can also be created.



4.6 Groups

Groups of Jobs are created be grouping existing Jobs. Groups of Jobs can be assigned to existing PC or to groups of PC. Groups of PCs are created be grouping existing defined PC. Groups of PC can execute existing Jobs or groups of Jobs.



4.7 Statistics

Summary statistics regarding the Monocrat's PC and Jobs.